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Gundula Roth

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EXAMINER

RALEIGH, DONALD L

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/539,248	<b>Applicant(s)</b> ROTH ET AL.	
	<b>Examiner</b> DONALD L. RALEIGH	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 4-10 and 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 11-18 and 26-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Regarding claim 16, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 1, the delineation of the elements of the Markush group is unclear. For purposes of examination, examiner assumes that Claim 1 contains five elements of a Markush group. The second element "a manganese activated aluminate" was chosen for examination. A better delineation of elements of the Markush group is needed, perhaps with the use of the word "Or" between elements.

The remaining claims are rejected due to their dependency.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1, 2, 3, 12, 17-18 and 31, are rejected under 35 U.S.C. 102(e) as being anticipated by Kawamura (US PG Pub. No. 2002/0195938).**

**Regarding Claims 1, 2, 3, 17-18 and 31,** Kawamura discloses a phosphor for converting ultraviolet light (emitted during gas ionization) or blue light emitted from a light emitting element into a visible white radiation (this is how a Plasma display panel works) comprising- a light emitting component selected from a group consisting of: a manganese(IV)-activated compound, the manganese (IV)-activated compound selected from a group consisting of an aluminate (¶ [0018], lines 1-3).

It is noted that claims 2, 3, 17-18 and 31 are directed to non-selected elements of the Markush group.

**Regarding Claim 12,** Kawamura discloses a phosphor (abstract, line 1) for converting ultraviolet or blue light emitted from the light emitting element (¶ [0042], lines 1-5) to a visible white radiation (for display) wherein said phosphor is applied, either solely or as a mixture of other phosphor, as a layer (the phosphor is a layer in Kawamura ¶ [0042], line 5) in a light emitting element and white light with color

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rendering Ia is produced by a combination of a primary radiation emitted from said light emitting element with a radiation emitted from the layer of the phosphor (This is how a plasma display works, UV rays from the ionized gas during discharge impinge on the phosphor on the ribs which produces visible light).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 11, 13-15, 26 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (938) in view of Taskar et al (US Patent No.6,734,465).**

**Regarding Claim 11**, Kawamura fails to exemplify a phosphor for converting ultraviolet or blue light emitted from the light emitting element to a visible white radiation wherein white light having color rendering  $I_a$  and a color rendering index  $R_a > 90$  is produced by a combination of a radiation emitted from the phosphor with a primary radiation emitted from a light emitting element capable of constituting a semiconductor element or a gas discharge lamp and, thus, this element can be used as a background illumination device and in lighting in a living space and furnishings, in photography and microscopic examination, in medical technology, and in lighting technology in museums and any place where a very authentic color rendering is important.

Taskar teaches a phosphor for converting ultraviolet light emitted from the light emitting element to a visible white radiation (Column 1, lines 56-59) wherein white light having color rendering  $I_a$  and a color rendering index  $R_a > 90$  (Column 1, lines 60-61) is produced by a combination of a radiation emitted from the phosphor (Column 1, line 59) with a primary radiation emitted from a light emitting element (LED) (Column 1, line 57), capable of constituting a semiconductor element (LED)(Column 1, line 57) or a gas discharge lamp and, thus, this element can be used as a background illumination device and in lighting in a living space and furnishings, in photography and microscopic examination, in medical technology, and in lighting technology in museums and any place where a very authentic color rendering is important. Taskar provides this phosphor to produce a higher energy efficiency from a UV/blue lighting system color rendering index (Column 2, lines 10-13).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize the phosphor, as taught by Taskar, to produce a higher energy efficiency from a UV/blue lighting system. color rendering index.

**Regarding Claim 13**, Kawamura fails to exemplify a phosphor for converting ultraviolet or blue light emitted from the light emitting element to a visible white radiation wherein said light emitting element used comprises an LED for emitting a primary radiation in an ultraviolet spectrum region with more than 300 nm or a violet or blue spectrum region with more than 380 nm.

Taskar teaches in Column 1, the phosphor (line 59) wherein said light emitting element used is LED (line 57) for emitting a primary radiation in an ultraviolet spectrum region (line 58) with more than 300 nm (line 59) or a violet or blue spectrum region with more than 380 nm (line 59) to produce high quality light at low cost and minimum degradation (Column 1, lines 60-65).

Although the device of Taskar is an LED and the device of Kawamura is a PDP, both use inorganic phosphors and the interchange of phosphors is possible.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the phosphor, as taught by Taskar, in the device of Kawamura, to produce high quality light at low cost and minimum degradation.

**Regarding Claim 14**, Kawamura discloses an optical device (title (PDP)), comprising- a wavelength converting part (fluorescent material, abstract, line 1), comprising a phosphor adapted to be excited to emit light (fluorescent), wherein the said wavelength converting part comprises a light emitting component selected from a

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group consisting of : a manganese(IV)-activated compound, the manganese (IV)-activated compound selected from a group consisting of an aluminate ( $\text{Al}_2\text{O}_3$  [0018], lines 1-3).

Kawamura fails to disclose that the light emitted is based on light emitted from an LED element.

Taskar teaches at least in Figure 2, an optical device (LED) comprising a wavelength converting part (Column 1, lines 57-59, (phosphor)), said wavelength converting part comprising a phosphor capable of emitting light excited based on light emitted from an LED element (Column 1, line 60) to produce high quality light at low cost and minimum degradation (Column 1, lines 60-65).

Although, the device of Kawamura is a PDP and the device of Taskar is an LED, both use inorganic phosphors and the combination of Taskar's device with Kawamura's phosphor would be proper.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the phosphor of Kawamura in the device of Taskar, to produce high quality light at low cost and minimum degradation.

**Regarding Claim 15**, Kawamura discloses an optical device but fails to disclose an optical device comprising: an LED element. a power feeding part for mounting said LED element thereon and feeding power to said LED element; a light transparent sealing part for sealing said LED element and said power feeding part integrally with each other; and a wavelength converting part for emitting light upon excitation based on light emitted from said LED element,

Taskar teaches in Figure 2, an optical device characterized by comprising an LED element (Column 5, line 66), a power feeding part (12)(Column 5, lines 66-67) for mounting said LED element thereon and feeding power to said LED element, a light transparent sealing part (14) for sealing said LED element and said power feeding part integrally with each other, and a wavelength converting part (13) (Also, see Column 6, lines 4-6) for emitting light upon excitation (Column 5, line 62) based on light emitted from said LED element, said wavelength converting part comprising a light emitting component (13) to produce high quality light at low cost and minimum degradation (Column 1, lines 60-65).

Kawamura discloses wherein said wavelength converting part comprises a light emitting component selected from a group consisting of : a manganese(IV)-activated compound, the manganese (IV)-activated compound selected from a group consisting of an aluminate (¶ [0018], lines 1-3).

Although, the device of Kawamura is a PDP and the device of Taskar is an LED, both use inorganic phosphors and the combination of Taskar's device with Kawamura's phosphor would be proper.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the phosphor of Kawamura in the device of Taskar, to produce high quality light at low cost and minimum degradation.

**Regarding Claim 26**, Kawamura fails to exemplify the optical device wherein said wavelength converting part is included in said light transparent sealing resin for sealing said LED element.

Taskar teaches, at least in Figure 3, the optical device (LED) wherein said wavelength converting part (13) is included in said light transparent sealing resin (14) for sealing said LED element (Column 6, lines 4-6) as an obvious attempt to encapsulate the device to protect from moisture and degradation.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the sealing resin, as taught by Taskar, in the optical device of Kawamura, to protect the device from moisture and degradation.

**Regarding Claim 29**, Kawamura fails to exemplify the optical device wherein said wavelength converting part is provided on a surface of the sealing resin having an optical shape that radiates light emitted from said LED element in a desired lighting area.

Taskar, at least in Figure 2, teaches the optical device (LED) characterized in that said wavelength converting part (13) is provided on a surface of the sealing resin (Since the sealing resin goes over it, the element (13) is on the bottom surface of the sealing resin) having an optical shape that radiates light emitted from said LED element in a desired lighting area. (Figure 2, top left, shows a phosphor layer (13) conforming in shape to the sealing resin (14) to effectively radiate light in a desired area as defined by angled wings of the LED support).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the shape of the wavelength converting part to the shape of the sealing resin, as taught by Taskar, in the device of Kawamura, to

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effectively radiate light in a desired area as defined by angled wings of the LED support).

**Regarding Claim 30**, Kawamura fails to disclose wherein said wavelength converting part is excited upon exposure to blue light and/or ultraviolet light with wavelengths ranging from 300 nm to 500 nm.

Taskar teaches, at least in Figure 2, the optical device (LED) characterized in that said wavelength converting part (phosphor) is excited upon exposure to blue light and/or ultraviolet light with wavelengths ranging from 300 nm to 500 nm (Column 1, lines 57-60) to produce high quality light at low cost and minimum degradation (Column 1, lines 60-65).

Although the device of Taskar is an LED and the device of Kawamura is a PDP, both use inorganic phosphors and the interchange of phosphors is possible.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the phosphor, as taught by Taskar, in the device of Kawamura, to produce high quality light at low cost and minimum degradation.

**Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (938) in view of Pelka et al (US PG Pub. No. 2003/0085642).**

**Regarding Claim 16**, Kawamura fails to exemplify an optical device comprising: an LED lamp; a light guiding part for guiding light emitted from said LED lamp; and a wavelength converting part for emitting light upon excitation based on light guided through said light guiding part.

Pelka teaches in figure 1, an optical device characterized by comprising an LED lamp (Paragraph [0042], line 20) , a light guiding part (4)(Paragraph [0052], lines 10-11) for guiding light emitted from said LED lamp, a wavelength converting part (Paragraph [0042], lines 18-22) for emitting light upon excitation based on light guided through said light guiding part (4) so that the light is emitted from the collector at an angle that will satisfy the conditions for waveguide propagation within the collector (Column 43, lines 8-10).

Kawamura discloses wherein said wavelength converting part comprises a light emitting component selected from a group consisting of : a manganese(IV)-activated compound, the manganese (IV)-activated compound selected from a group consisting of an aluminate (¶ [0018], lines 1-3).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the light guide and LED , as taught by Pelka, with the phosphor of Kawamura, so that the light is emitted from the collector at an angle that will satisfy the conditions for waveguide propagation within the collector.

**Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (938) in view of Taskar (465) and further in view of Yoo (US PG Pub. No. 2004/0169181).**

**Regarding Claim 27**, Kawamura fails to exemplify the optical device wherein said phosphor comprises a thin-film phosphor layer that is sealed with said light transparent glass.

Taskar teaches, at least in Figure 3, a phosphor (13) that is included in a light transparent resin (14) for sealing said LED element (Column 6, lines 4-6).

Furthermore, Yoo teaches in at least figures 6-8, the optical device (title) characterized in that said phosphor is a thin-film phosphor layer (Paragraph [0043], line 1) that is sealed with said light transparent glass (Paragraph [0047], line 1 (encapsulated)). The film layer is provided as an obvious means of providing an economy of materials and labor. Since the material is deposited via CVD (Paragraph [0044], lines 1-2, the thin film will save time in the process.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the thin film phosphor layer, as taught by Yoo, and seal it with transparent resin, as taught by Yoo, using the phosphor material of Kawamura, as an obvious means of providing an economy of materials and labor.

**Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (938) in view of Taskar (465) and further in view of Duggal et al (US Patent No. 6,700,322).**

**Regarding Claim 28**, Kawamura, as modified by Taskar, fails to disclose the optical device wherein said phosphor layer is planar.

Duggal teaches in Figures 1-3, the optical device (OLED) wherein said phosphor layer is planar (Column 7, lines 65-67) in order to provide uniformity in light output over the area of the light source (Column 1, lines 55-60).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the planar phosphor layer properties, as taught by

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Duggal, in the phosphor layer of Kawamura, as modified by Taskar, in order to provide uniformity in light output over the area of the light source.

### ***Response to Arguments***

Applicant's arguments filed 12/30/2008 with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection. The extensive amendment of all of the independent claims necessitates a new search and new prior art references.

### ***Conclusion***

Applicant's amendment filed 12/30/2008 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. RALEIGH whose telephone number is (571)270-3407. The examiner can normally be reached on Monday-Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter J Macchiarolo/  
Primary Examiner, Art Unit 2879

/Donald L Raleigh/

Examiner, Art Unit 2879